

Claim Rejections under 35 U.S.C 102

Claims 1-14 and 20 are rejected under 35 U.S.C 102(e) as being anticipated by U.S. patent no. 6,282,215 to Zorabedian et al. Claim 20 has been cancelled rendering its rejection moot. The rejection of each of Claims 1-14 is respectfully traversed for the reasons that follow.

The Examiner states with reference to Claims 1-9 that "the methods of compensating optical are considered as apparatus by process steps." It is submitted that each of Claims 1-19 is a method claim, and that there are not pending product-by-process claims in this application.

It is also submitted that Applicant's advantageous methods are for compensating optical drift of a wavelength measurement system of, or for preparing, an excimer or molecular fluorine laser system. Zorabedian et al. describe an External Cavity Diode Laser (ECDL) which is a distinct field of lasers from excimer and molecular fluorine lasers.

It is further submitted that Zorabedian et al. do not disclose calibrating the wavelength measurement system to an absolute reference as required at each of Claims 1-19. As described by Zorabedian et al. beginning at column 16, line 54, the wavelength meter 1020 simply measures the wavelength selected by the air-gap etalon. There is no discussion of calibrating the wavelength meter to an absolute wavelength. The Examiner is relying upon the computer memory 1004 to meet this step of calibrating the wavelength measurement system to an absolute reference. However, the computer memory 1004 is described, at column 15, lines 55-58, as having program code stored thereon for controlling the operation of a processor 1002, and does not appear to be otherwise described. It is also difficult to imagine how the computer memory 1004 could function as an absolute wavelength calibration standard. The Examiner is referred to multiple references throughout Applicants' specification to examples (non-limiting as to the claims) of hollow cathode lamps, reference lasers, and reference lamps for providing lines of known wavelength to calibrate the WMS. A computer memory 1004 simply cannot provide a line of known wavelength, neither by absorption, photo-emission, opto-galvanic transition, nor other absolute wavelength calibration technique.

With particular reference to Claim 1, it is submitted that Zorabedian et al. do not disclose the recited steps of calculating a compensated wavelength by figuring in a

previously determined drift compensation value, and adjusting the wavelength of the laser beam to the target wavelength when the compensated wavelength differs from the target wavelength. As mentioned, Zorabedian et al. only disclose to use a wavelength meter. There is no previously determined drift compensation value discussed by Zorabedian et al. that is figured into calculating a compensated wavelength, i.e., compensated from an actually measured wavelength using the WMS, and there is no wavelength adjusting to the target wavelength when the target wavelength differs from the compensated wavelength, i.e., again which may differ from the wavelength actually measured by the WMS by a drift compensation value.

Claim 2 is allowable as being dependent from Claim 1. Claim 2 is further allowable as reciting to repeat steps (d) through (f) of Claim 1 a number of times after additional periods of laser operation. This feature is not disclosed by Zorabedian et al. In fact, the wavelength meter 1020 of Zorabedian et al. is not even shipped with the laser (see column 16, lines 57-59).

It is further submitted that Zorabedian et al. also do not disclose Applicants' step of determining the wavelength of the laser, as recited at Claim 3, including retrieving a drift compensation value stored as corresponding to a current laser system operating condition, and calculating the wavelength of the laser beam based on the transmitted wavelength information and the retrieved drift compensation value. There is simply no drift compensation anywhere disclosed or even suggested by Zorabedian et al. Claim 4 is allowable as being dependent from Claim 3 and for the same additional reason as Claim 2.

Now referring to Claim 5, it is further submitted that Zorabedian et al. do not disclose the steps of comparing the value of the wavelength measured by the wavelength measurement system after a predetermined period of laser operation with an actual value of the wavelength of the laser beam, and determining a drift compensation value based on a result of the comparing step. As understood, Zorabedian et al. accept their measured wavelength value as the actual value and do not consider drift or drift compensation anywhere in the '215 patent. Claim 6 is allowable as being dependent upon Claim 5 and for the same additional reasons as Claims 2 and 4, and for the additional reason that it recites storing drift compensation values versus laser operation period of the WMS for use with a wavelength stabilization routine of the laser system. As mentioned, the wavelength meter 1020 is not even shipped with the laser of Zorabedian et al.

Claim 7 recites operating the laser system at the target wavelength by orienting a tuning optic at a first position, orienting the tuning optic to a second position after a period of laser operation to tune the wavelength to the target value, comparing the first and second positions, and determining a drift compensation value based on a result of the comparing step. Zorabedian et al. do not disclose these features. As mentioned above, Zorabedian et al. do not address in any way, or suggest, to determine a drift compensation value, and the wavelength meter 1020 is not even shipped with the laser. Claim 8 is allowable as being dependent upon Claim 7, and for the same additional reasons as Claim 6.

Claims 9-14 are allowable as being dependent from Claims 1, 3, 5 or 7. Claims 9 and 11-13 are also allowable for the additional reason that each recites specific language drawn to determining drift compensation values, while Zorabedian et al. do not even address drift compensation in the '215 patent. Claim 14 is also allowable for the additional reason that it recites tabulating the drift compensation values based on an amount of laser operation for given laser operation conditions.

Claim Rejections Under 35 U.S.C. 103

Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zorabedian et al. in view of U.S. patent no. 6,128,323 to Myers et al. This rejection is also respectfully traversed. Neither Zorabedian et al., nor Myers et al., nor any combination thereof teaches or suggests the features of Applicants' invention as set forth in the pending claims. In particular, Claims 15-19 are dependent from Claims 1, 3, 5, and 7 which recite features discussed above that are neither taught nor suggested by Zorabedian et al. Myers et al. also do not teach or suggest those features, and Claims 15-19 are allowable as being dependent from Claims 1, 3, 5, or 7. Neither reference in any way addresses optical drift compensation.

Information Disclosure Statement

Applicants' submitted an information disclosure statement which was filed October 9, 2002. The Examiner is respectfully requested to send an initialed copy of the PTO Form 1449 to the undersigned attorney and place another copy to the PTO file upon considering the references cited therein.

In view of the above, it is respectfully submitted that the application is now in condition for allowance. The Examiner's reconsideration and further examination are respectfully requested.

In the event any fee is required for filing the above-noted document, including any fees required under 37 CFR 1.136 for any necessary Extension of Time to make the filing attached document timely, the Assistant Commissioner is hereby authorized to charge the fee to our Deposit Account No. 50-0612. A duplicate of this page is enclosed.

Respectfully submitted,
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